Physics 1310 Lab

Spring 2022
Section 8, CRN: 45299
Workman 115
Thursdays, 5:00 - 7:20 PM

Instructor: Juliana Barstow
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Office Hours: By appointment only - Feel free to email me any questions you have, if you would like to discuss anything in person or by zoom please list your available times to meet in your email.

Course Description and Outcomes

This course allows you to see real world applications by conducting experiments related to the concepts covered in the lecture. It introduces techniques for obtaining and analyzing experimental observations using diverse methods and equipment. By the end of this course, it is expected that students have acquired first-hand knowledge of the fundamental principles of Newtonian Mechanics. In addition, the students should have learned basic techniques for obtaining and analyzing experimental data.

Materials

The only required material in the Physics 121 Lab Manual; it has all the relevant information to perform each lab. I also recommend you bring a calculator and a laptop for spreadsheets in order to ease calculations.

Note: For safety, no food is allowed in the Lab; beverages should be carried in spill-proof containers.

Policies

1. Be on time. There is an introduction given at the beginning of each class that I will not repeat.
2. Read the lab manuals, you are expected to know what we will be covering in lab prior to coming to class. I reserve the right to give pop quizzes if necessary.
3. Any labs turned in one week past their deadline will not be accepted unless I have given you explicit permission.
4. Generally, you cannot make up labs (see Attendance section).
5. Questions are always welcome and encouraged, don't hesitate to ask for clarification if there is something you don't understand.
6. Turn your phones on vibrate while in class.

Attendance and Participation
Attendance is mandatory. If you know you are going to be absent due to scheduling conflicts, let me know in advance. If you absence is due to an emergency, you may make up the lab by attending another session from that week as long as the TA from that session agrees.

Labs are completed in groups, but all individual members are expected to participate. Make sure I sign your data sheet before you leave class. Data obtained during the lab session is expected to be the same within each group (tables, graphs, etc.). However, your written assignment must be your own work; any help received must be acknowledged, and proper citation of the utilized sources must be included.

Grading
There are a total of 13 labs; 4 will have lab reports and 9 have corresponding worksheets. All are worth 100 points. At the end of the semester, the lowest lab grade will be dropped, as long as you attend every lab. Participation and the signed raw data sheet will count for 30% of your assignment grade, while the report or worksheet will count for 70%.

Assignments are due at the beginning of the following week's lab session, unless stated otherwise. The grade will be reduced by 10% for each day it is late, up to one week after it was due. Assignments turned in more than one week after the due date will not be graded and are an automatic zero (these won't dropped).

All reports should be typred up and include all of the following:

1. **Cover Page:** At the beginning of the report, include the name of the experiment, your name, the TAs name, the date of the experiment, and the names of all your group members.
2. **Raw Data Sheet:** Attach the raw data sheet you completed in class. For full credit, make sure that it is signed before you leave class. *(30 pts)*
3. **Introduction:** Write several sentences that describe the purpose of the lab (consider what the lab is about and what you are trying to accomplish). **DO NOT COPY FROM THE MANUAL!** You should also include any relevant results. *(5 pts)*
4. **Methods:** This is a brief description of the lab setup and procedure, including a labeled sketch/photo of the instrument setup. Do not use bullet points. *(10 pts)*
5. **Data/Analysis:** In general, its a good idea to reproduce the data collected from the raw data sheet as it can make your report easier to follow. Complete all tasks listed in the Analysis portion of the lab manual. Include sample calculations for each equation used in the analysis. Label any required tables (with titles) and/or plots (with descriptions). Discuss your results and compare them to your theories and predictions, list any potential errors. *(35 pts)*
6. **Discussion/Conclusion:** Write a small paragraph discussing the results of your experiment(s). Discuss possible sources of error and explain how they affect your results. Or, if the error is negligible, explain why in the context of the lab. *(10 pts)*

7. **Presentation:** I do not require a specific template, but make sure each section is clearly defined and all equations, graphs, and tables are neatly presented. This includes the cover page. *(10 pts)*

8. **Draft:** For you first two reports, you will write a rough draft. These must be turned in with your final report.

Letter grades will be assigned as follows (+/- grades given rarely at my discretion):
A: 90-100
B: 80-90
C: 70-80
D: 60-70

NMT Academic Honesty
New Mexico Tech's Academic Honesty Policy for undergraduate and graduate students is found in the student handbook, which can be found at: https://www.nmt.edu/studenthandbook/. You are responsible for knowing, understanding, and following this policy.

Plagiarism is not tolerated. Any suspicion of a violation of the letter or intent of the NMT policy will be reported to the Lab Director, who will determine the appropriate charges to bring to the Office of the Associate Vice President for Academic Affairs.In general, obtaining answers that, in any way, bypass the need to think about the assignment is a violation of the academic honesty policy and can have serious consequences. If in doubt, please ask your instructor before submitting any work as your own.

Reasonable Accommodations
New Mexico Tech is committed to protecting the rights of individuals with disabilities. Qualified individuals who require reasonable accommodations are invited to make their needs known to the Office for Disability Services (ODS) as soon as possible. They will describe the process by which you can request such accommodations for this course. To schedule an appointment, please call 835-6209, or email disability@nmt.edu.

Counseling Services
New Mexico Tech offers individual and couples counseling, safety assessments, crisis intervention and consultations through The Counseling Center. These confidential services are provided free of charge by licensed professionals. For more information, please call 835-6619, email counseling@nmt.edu or complete an Intake Form on our website at https://www.nmt.edu/cds/. All services are provided via phone or Zoom during the Covid-19 pandemic.

Respect Statement
New Mexico Tech supports freedom of expression within the parameters of a respectful learning environment. As stated in the New Mexico Tech Guide to Conduct and Citizenship: "New Mexico Tech's primary purpose is education, which includes teaching, research, discussion, learning, and service. An atmosphere of free and open inquiry is essential to the pursuit of education. Tech seeks to protect academic freedom and build on individual responsibility to create and maintain an academic atmosphere that is a purposeful, just, open, disciplined, and caring community."

COVID-19 Safety Issues for Face-to-Face Instruction
As of the beginning of Spring semester, NMT classes are under the following constraints, which may change as COVID conditions and/or New Mexico Governor's orders change. Please check for daily updates of COVID constraints, posted on www.nmt.edu/covid19/.

1. All vaccinated and unvaccinated individuals are required to wear a face mask indoors anywhere on campus.
2. Instructors and TAs will not ask for proof of vaccination.
3. Please note provisions on masks, vaccines or other possible requirements are subject to change as the situation evolves, based on guidance from the Centers for Disease Control, the State of New Mexico, and university officials (i.e., the President and the Board of Regents).
4. Students should not come to class if they are feeling ill and to follow any quarantine guidelines that they are given in the event of exposure to COVID-19. If you do miss class, please contact the instructor for missed assignments, contact the Student Health Center, and consider getting tested for COVID-19.

Title IX Reporting
Sexual misconduct, sexual violence and other forms of sexual misconduct and gender-based discrimination are contrary to the University's mission and core values, violate university policies, and may also violate state and federal law (Title IX). Faculty members are considered "Responsible Employees" and are required to report incidents of these prohibited behaviors. Any such reports should be directed to Tech's Title IX Coordinator (Dr. Peter Phaiah, 216 Brown Hall, 575-835-5880 (O), 575-322-0001 (C), titleixcoordinator@nmt.edu). Please visit Tech's Title IX Website (www.nmt.edu/titleix) for additional information and resources.

Note: Some of this syllabus has been adapted from a document provided by NMT Physics Department